Proposed Product Category for Biobased Designation

The following biobased product information has been collected to support product category designation by USDA for the BioPreferred Program. This summary reflects data available as of June 12, 2009.

Title: Floor Coverings (Non-Carpet)

Description: Products, other than carpet products, that are designed for use as the top layer on a floor. Examples are bamboo, hardwood, and cork tiles.

Companies Supplying Product Category: 38 companies supplying Floor Coverings (Non-Carpet) have been identified through internet searches, manufacturer's directories, trade associations, and company submissions.

Industry Associations Investigated: The following industry associations have been investigated for member companies supplying Floor Coverings (Non-Carpet):

- Carpet and Rug Institute
- National Corn Growers Association
- National Wood Flooring Institute
- United Soybean Board Association

Commercially Available Products Identified: Of the companies identified, 343 Floor Coverings (Non-Carpet) are commercially available on the market.

Product Information Collected: Specific product information including company contact, intended use, biobased content, and performance characteristics have been collected on 45 Floor Coverings (Non-Carpet).

Industry Performance Standards: Product information submitted by biobased manufacturers and suppliers indicate that have typically been tested to the following industry standards:

- ASTM E1333

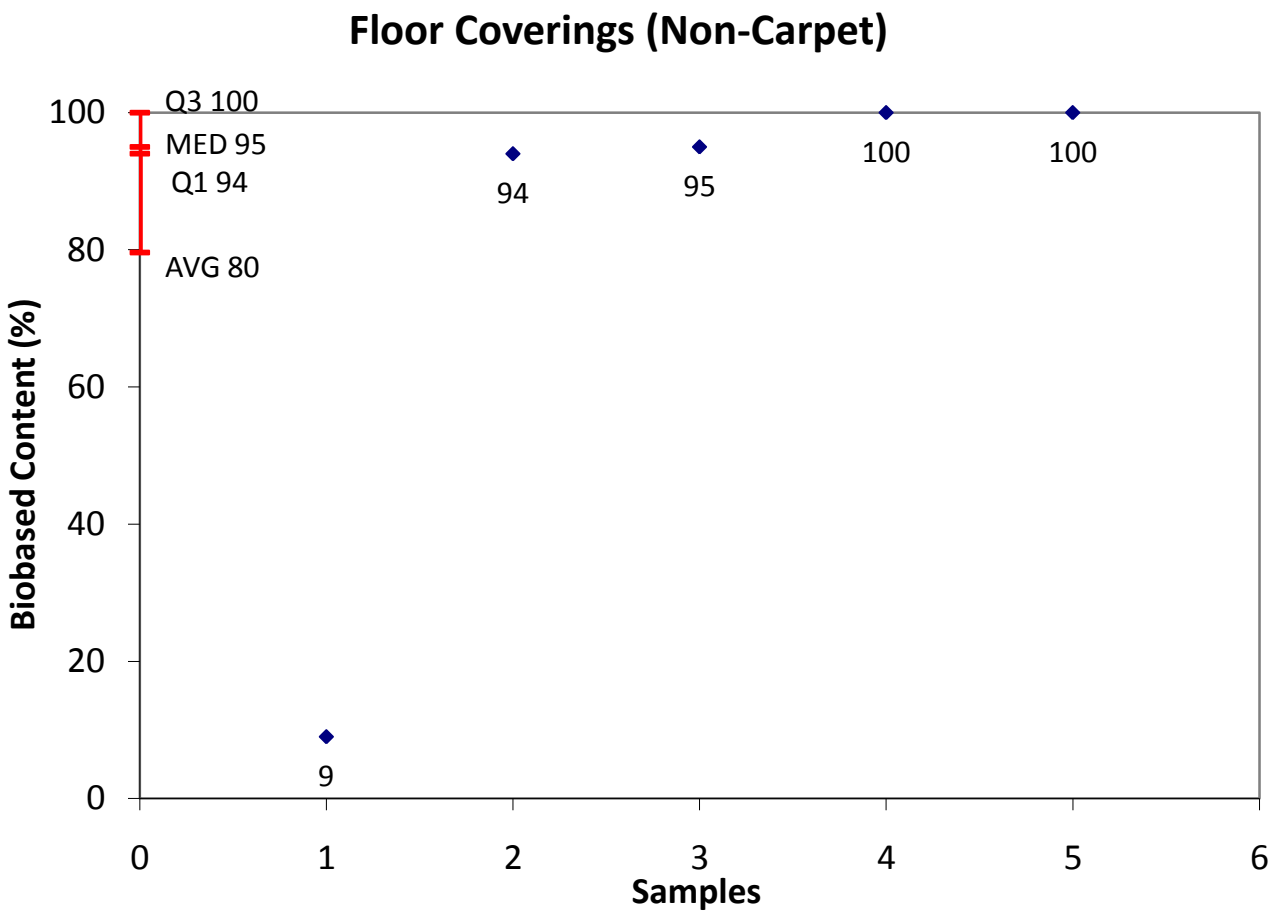
Samples Tested for Biobased Content: 5 samples of Floor Coverings (Non-Carpet) have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866.

Biobased Content Data: Results from biobased content testing of Floor Coverings (Non-Carpet) indicate a range of content percentages from 9% minimum to 100% maximum biobased content as defined by ASTM D6866. A detailed distribution of biobased content levels is included as Appendix A.

Products Submitted for BEES Analysis: Life-cycle cost and environmental effect data for 1 Floor Coverings (Non-Carpet) have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle cost of the submitted Floor Coverings (Non-Carpet) is $3.12 per usage unit. The environmental score is 0.0202. A detailed summary of the BEES results is included as Appendix B.

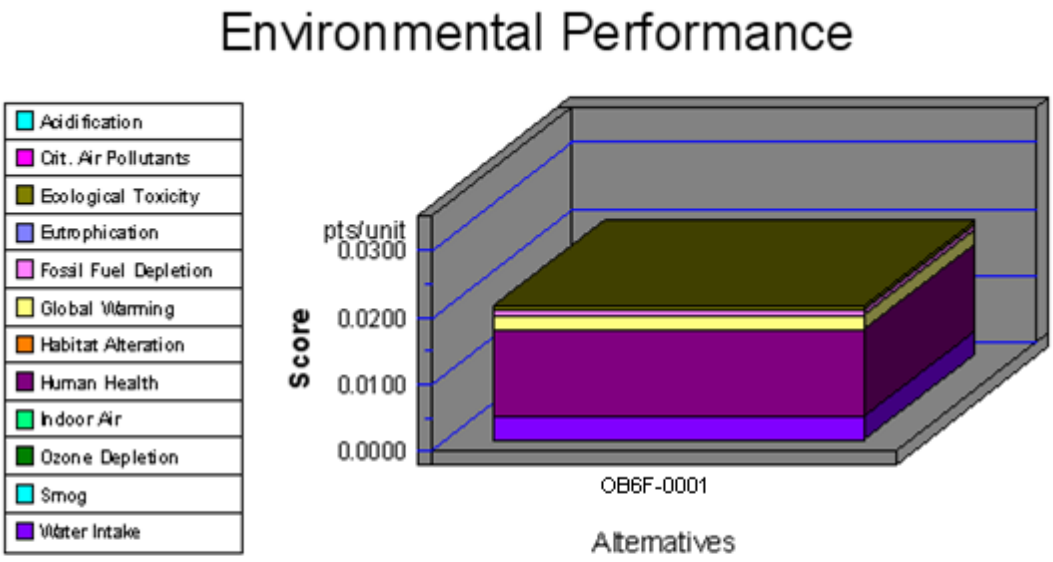
Appendix A - Biobased Content Data



	Company	Product	C14	BEES
1	OB6F	OB6F-0001	9	Yes
2	UUGG	UUGG-0001	94	
3	OG7Q	OG7Q-0003	95	
4	RGQ4	RGQ4-0004	100	
5	OG7Q	OG7Q-0001	100	

Appendix B - BEES Analysis Results

Functional Unit: 1 square foot of coverage



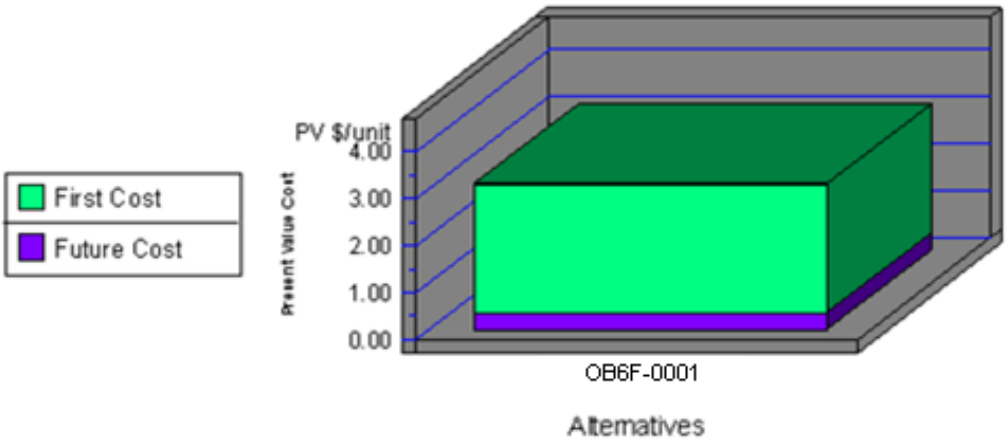
Note: Lower values are better

Category	OB6F-0001
Acidification--3%	0.0000
Crit. Air Pollutants--9%	0.0001
Ecolog. Toxicity--7%	0.0003
Eutrophication--6%	0.0002
Fossil Fuel Depl.--10%	0.0008
Global Warming--29%	0.0020
Habitat Alteration--6%	0.0000
Human Health--13%	0.0131
Indoor Air--3%	0.0000
Ozone Depletion--2%	0.0000
Smog--4%	0.0002
Water Intake--8%	0.0035
Sum	0.0202

Floor Covering Products		
Impacts	Units	Armstrong Migrations Bio-based tile
Acidification	millimoles H^+ equivalents	5.72E+02
Criteria Air Polutants	microDALYs	1.55E-01
Ecotoxicity	g 2,4-D equivalents	3.35E+00
Eutrophication	g N equivalents	6.60E-01
Fossil Fuel Depletion	MJ surplus energy	2.79E+00
Global Warming	g CO_2 equivalents	1.84E+03
Habitat Alteration	T&E count	5.21E-11
Human Health--Cancer	g C_6H_6 equivalents	8.55E+00
Human Health--NonCancer	g C_7H_8 equivalents	9.55E+02
Indoor Air Quality	g TVOCs	0.00E+00
Ozone Depletion	g CFC-11 equivalents	1.62E-07
Smog	g NO_x equivalents	6.67E+00
Water Intake	liters of water	2.30E+02
Functional Unit	----------	1 square foot of coverage

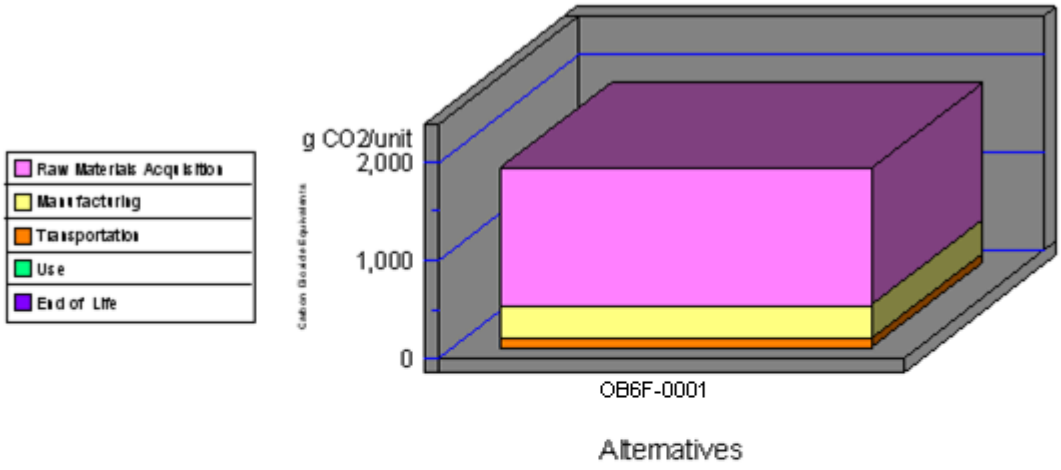
1 Following are more complete descriptions of units: Acidification: millimoles of hydrogen ion equivalents; Criteria Air Pollutants: micro Disability-Adjusted Life Years; Ecological Toxicity: grams of 2,4-dichlorophenoxy-acetic acid equivalents; Eutrophication: grams of nitrogen equivalents; Fossil Fuel Depletion: megajoules of surplus energy; Global Warming: grams of carbon dioxide equivalents; Habitat Alteration: threatened and endangered species count;Human Health-Cancer: grams of benzene equivalents; Human Health-NonCancer: grams of toluene equivalents; Indoor Air Quality: grams of Total Volatile Organic Compounds; Ozone Depletion: grams of chloroflourocarbon-11 equivalents; Smog: grams of nitrogen oxide equivalents; and Water Intake: liters of water.

Economic Performance



Category	OB6F-0001
First Cost	2.75
Future Cost– 3.0%	0.37
Sum	3.12

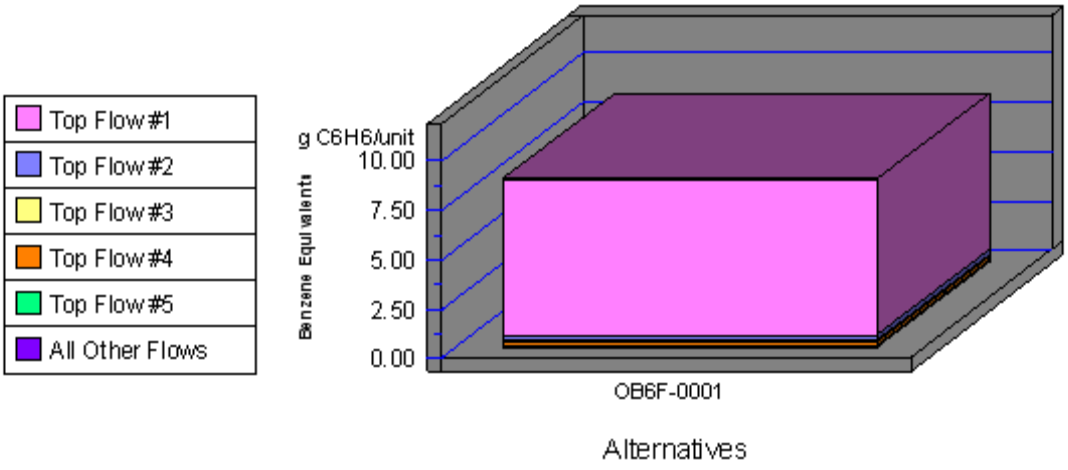
Global Warming by Life-Cycle Stage



Note: Lower values are better

Category	OB6F-0001
1. Raw Materials	1402
2. Manufacturing	334
3. Transportation	99
4. Use	2
5. End of Life	0
Sum	1837

Human Health Cancer by Sorted Flows*

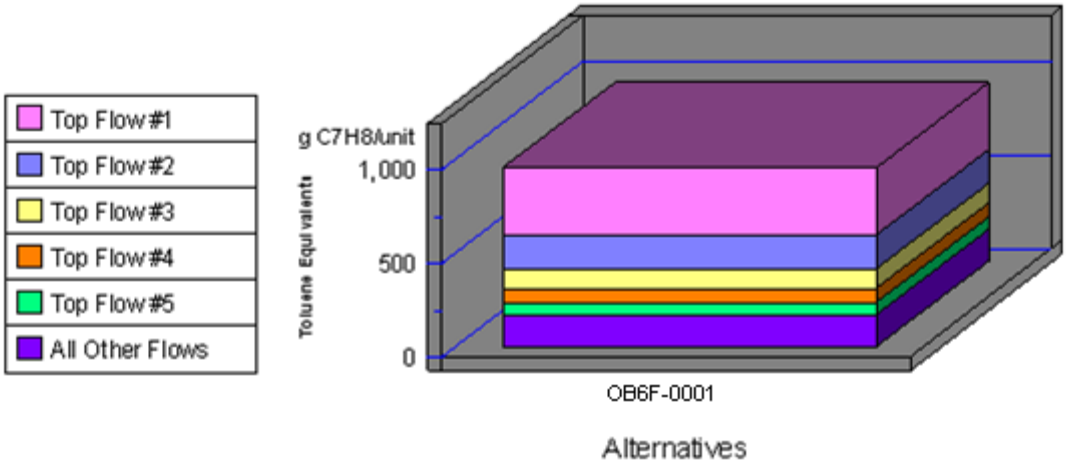


Note: Lower values are better

Category	OB6F-0001
Cancer--(w) Phenol (C6H5OH)	7.91
Cancer--(w) Arsenic (As3+,	0.20
Cancer--(a) Dioxins (unspecifie	0.14
Cancer--(a) Benzene (C6H6)	0.12
Cancer--(a) Arsenic (As)	0.12
All Others	0.06
Sum	8.55

*Sorted by five topmost flows for worst-scoring product

Human Health Noncancer by Sorted Flows*



Note: Lower values are better

Category	OB6F-0001
Noncancer–(a) Mercury (Hg)	355.57
Noncancer--(a) Dioxins (unspeci	179.32
Noncancer–(w) Mercury (Hg+,	105.77
Noncancer--(a) Lead (Pb)	79.63
Noncancer--(w) Barium (Ba++)	65.24
All Others	169.86
Sum	955.38

*Sorted by five topmost flows for worst-scoring product